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## CONVENTION POSTPONED.

In the last issue of the CANADIAN FORESTRY JOURNAL it was announced in good faith that the expected forestry convention would be held in conjunction with the meeting of the Commission of Conservation at some point in Quebec during the

second week in June. Circumstances arose later that caused the Commission of Conservation to alter their plans and cancel the June meeting; consequently the forestry convention was also postponed. The dates will be announced later.

## NOTES ON NORTH AMERICAN FORESTRY.

By Prof. W. Somerville, Oxford University, England, in the Quarterly Journal of Forestry for April, 1910, (Vol. 4, No. 2).

Last year chance took me twice to North America. My first visit, in August and September, was chiefly confined to Canada, my second, in December, being to the Southern Appalachian Mountains, on the borders of Virginia, North Carolina and Tennessee. I cannot claim to have much that is new to tell, but at the request of the Editor I will gladly note down some impressions.

Sailing up the St. Lawrence, from the time that the New Brunswick coast is fairly visible, what strikes one at once is the large proportion of forest that has been burned. When one gets accustomed to the appearance of a burned forest one can recognize this state of things almost at any distance. All the smaller trees have been utterly consumed, but the large ones have lost their branches only, the stem remaining standing for years, dead and bleached. The first impression of Canadian forests was one that became emphasized as one journeyed westwards. Not until the Rockies were crossed did the train come in sight of a virgin forest that had not been felled or burned; and even in the humid climate of the Selkirk Mountains, and British Col-

umbia generally, it was rare to see an unburned forest. The causes of conflagrations are many, but the railway is the chief offender, and as the train labored up a steep incline, one could often see, looking back, that we were leaving fresh outbreaks of fire behind. There are laws both in the States and in Canada with regard to spark catchers on locomotives, but apparently they are generally disregarded. The Canadian Government is now realizing the extent of the loss that the country suffers annually through the needless destruction of timber, and a system of forest guards has been established, which already is making itself felt, and which will, in time, be of great service. If forest fires are common in virgin forest, they are still more so on cut-over land, where the top and lop is almost as combustible as dry gorse. In few cases does one, east of the Rockies, see any good natural regeneration of valuable species, the Spruce, Hemlock and Pine forests being succeeded, for the most part, by comparatively worthless Poplar (*P. tremuloides*) and Birch. In British Columbia, however, valuable trees (*Thuja plicata*, Douglas Fir, *Picea Engelmanni*) would



rapidly re-clothe the ground were fires prevented. In the hardwood forests of the Appalachians fire does but little harm to mature forest, there being but little underwood to feed it. In autumn and spring the dead leaves that cover the ground are sometimes run over by fire, but the damage done is not serious. The case, however, is different on an area that has been logged. All the best trees have, of course, been removed, but the young growth and saplings have been left, and these would rapidly furnish another crop of timber if they were allowed to remain. But it seldom happens that cut-over land is spared by fire, with the result that enormous tracts of country are now little better than a wilderness.

In the Government Report on forest fires in Canada in 1908 it is stated that "The scarcity of valuable timber in Canada is due more to its destruction by forest fires than to any other cause," and certainly a visitor to the Dominion is much impressed by this waste.

The eastern forests of Canada extend nearly to Winnipeg, but west of that city the prairie almost monopolizes Manitoba, Saskatchewan and a large portion of Alberta. The numerous settlers who annually set up homes there have to fetch building timber from long distances, much of it now coming by the Canadian Pacific Railway from British Columbia. Although it is undesirable, even if possible, to create forest on prairie land, still much interest is taken in tree planting for fencing, shelter, and firewood; and at Regina, the capital of Saskatchewan, I had the pleasure of attending a two-days' Conference of the Canadian Forestry Association.

Some two hundred people took part in the meeting, and the interest and enthusiasm were unmistakable. The Department of Agriculture for the Dominion established an Experimental Farm at Indian Head in 1888, and since then the propagation of trees capable of growing in this district of low rainfall has been an important

feature of this work. During recent years about 100,000 young trees\* have been distributed annually, free to settlers, and already many homesteads are surrounded by well-grown shelter belts. The *Acer Negundo* and American Ash have proved most suitable amongst the hardwoods, while as regards conifers it was interesting to find that Norway Spruce, Scotch Pine and European Larch had done quite as well as any native species. But in this country of low rainfall success can be secured only by ploughing the land before planting, and by keeping it tilled for some years afterwards.

Between Lake Superior and Winnipeg the conifers that one sees most are *Picea mariana (nigra)*, *Pinus Banksiana (divaricata)*, and *Larix americana*; but when one enters the Rockies the first is replaced by *Picea Engelmanni*, and the second by *P. contorta*, var. *Murrayana*, while the larch gets scarce, and finally disappears. I cannot be sure that I saw *Larix occidentalis* at all, although its northern limit is about the Canadian Pacific Railway, but on the mountain above Lake Louise, at an altitude of some 5,000 feet, I got amongst numbers of Lyall's larch (*L. Lyallii*), a very poor tree, and one of no economic value. *Picea Engelmanni* is the chief spruce of the mountains, while the Western Hemlock (*Tsuga heterophylla (albertiana)*) and the Giant Thuya form a large proportion of the other conifers, to which, lower down, are to be added Douglas fir, *Pinus monticola*, and *Picea sitchensis*. Above Glacier, at an altitude of some 7,000 feet, *Tsuga Mertensiana (Pattoniana)* and *Pinus albicaulis* were met with, associated with *Abies lasiocarpa*. The lower slopes of the mountain were largely clothed with the Western Hemlock,

\*These figures refer to the free tree distribution from the Experimental Farm at Indian Head. The number of trees sent free from the Forest Nursery Station at the same place to settlers throughout the prairie provinces has for years averaged from two million to two and a half million per annum.—ED.



which there attains large dimensions. The hemlocks generally reproduce themselves very freely in North America, and even in Britain, as at Murthly and Dropmore, seedlings come up naturally in large numbers. In the lower valley of the Fraser River and especially in the park at Vancouver, the Douglas fir, Giant Thuja, Sitka spruce, *Abies grandis*, and the Sitka cypress reach large proportions. It did not strike me, however, that the growth was any better than, if indeed it was so good as, is to be seen under suitable conditions in this country.

At Ottawa, Vancouver, Victoria and elsewhere, I had the opportunity of seeing large sawmills, and the rapidity and ease with which the largest logs are brought to the saw bench, and handled there, was a revelation. In most cases the logs are floated, in many instances for hundreds of miles, to the foot of an inclined plane, up which they are transported by endless chains to the saw bench. Even where floating is not the

means of conveyance it is found desirable to construct a pond, into which the logs are thrown from the trucks. The pond serves many purposes. In the first place it is the means of clearing the logs from adhering grit, it offers the most convenient opportunity of sorting the timber, and it is a suitable place of storage for logs that it is desirable to hold over for some months. From any lot of timber felled in a virgin forest a considerable proportion is "pumped," "wormy," "foxy," or otherwise defective, and to get the largest proportion of sound, or fairly sound, boards, the logs have to be frequently turned over on the saw bench. This is done by means of a steam "nigger," which takes various forms, but is often a great notched bar of iron that comes up from below the bench at the will of the operator, and turns over and otherwise manipulates logs weighing a ton or more as easily and quickly as a man could move corks.

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## THE BROWN-TAIL MOTH IN CANADA.

By C. GORDON HEWITT, D.Sc., DOMINION ENTOMOLOGIST.

Although the Brown-tail Moth (*Euproctis chrysorrhæa*), which was introduced into Massachusetts from Europe about 1890, has spread rapidly into the adjacent eastern states, causing great destruction to fruit and shade trees and physical suffering to the inhabitants and involving an annual expenditure of thousands of dollars, it was not until 1907 that the first winter web of the caterpillars of this insect was found in Kings County, N.S., and sent to the Division of Entomology. This discovery was an indication that the brown-tail moth had established itself in Canada.

Realizing the serious results that would follow its spread in Nova Scotia the Department of Agriculture for Nova Scotia instituted a campaign which has been continued against the

insect, and many thousands of nests have been destroyed annually in Kings, Annapolis and Yarmouth Counties which were found to be infested with the insect. This prompt action cannot be too highly praised.

Stray specimens of the male moths have been found since 1902 in New Brunswick, but as yet no signs of the insect having gained a foothold have been observed in that province.

Early in 1909 the winter webs, which the young caterpillars spin and in which they pass the winter in colonies of several hundreds, were found in New York State on nursery stock imported from France. The Division of Entomology at Ottawa was advised of this fact and steps were immediately taken to have all European nursery stock imported into



Canada carefully inspected for these winter webs, in which stage the insect is most easily distributed but also most readily destroyed. Over a million and a half plants were examined and nearly two hundred winter webs were found on French stock.

This inspection which, in the absence of the necessary legislation, was carried on with the voluntary co-operation of the nurserymen importing the stock, is being repeated, and during the present season which is now closing over three hundred webs, representing probably several hundred thousands of caterpillars, have been found in more than two million plants inspected.

With the co-operation of the Customs Department, of the U.S. Bureau of Entomology and of the New York State Department of Horticulture, the Division is advised of all shipments of European nursery stock, and these are inspected at the points of destination. So far as we can judge this careful inspection, in which we have been assisted by the Departments of Agriculture of the provinces concerned, has prevented the introduction of the moth in nursery stock, in which manner it was first introduced into this continent.

Owing to the absence of the parasitic insects which keep it in check in Europe, where it is common but only occasionally seriously injurious, it has spread with astonishing rapidity. Being carried chiefly by the prevailing winds it has spread northwards into Vermont, New Hampshire and Maine, and is now within a hundred miles of the Canadian frontier.

As a result of a thorough inspection of the infested region in Nova Scotia the writer is of the opinion that its control is possible by a thorough and systematic inspection and the destruction of all the winter webs, and that by prompt action the insect may be prevented from spreading into the forest and wild thickets. The caterpillars feed on hardwoods such as oak, maple, elm, ash, etc., in addition to

cultivated and wild fruits and thorn. Its establishment in the forests would render control impossible.

Circumstantial evidence supports two theories to explain its introduction into Nova Scotia: the chief means appear to be vessels trading between such ports as Bridgetown, Bear River, Digby, etc., and the port of Boston. One infestation could be explained only by the remarkable fact that the moths are carried across from Massachusetts to Yarmouth County, N.S., by the wind; this has been found to occur, but practically all the moths so carried are males.

This insect presents one of the most serious problems with which the Division of Entomology is and will be confronted. In the Eastern States it was allowed to assume large and uncontrollable proportions before action was taken, with the result that it soon spread over several thousand square miles, and now the only hope lies in the establishing of the parasites which are being imported from Europe, reared and released. Several species have become established, and it is hoped that by these means the insect will be ultimately controlled, by which time, however, it is safe to prophesy that it will have reached and crossed the Canadian frontier.

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#### NOTE.

ONTARIO'S NEW REGULATIONS. The Provincial Government of Ontario has announced several important changes in their timber policy. Ground rents have been increased to \$5.00 per mile. The stumpage dues on pine have been increased from \$1.00 per thousand feet to \$1.50. On square and waney timber the dues have been increased from \$20.00 per thousand cubic feet to \$50.00; the purpose of the regulation is to discourage this extravagant use of the timber. The entire cost of fire ranging is to be borne by the license holders, instead of half being paid by the government, as formerly. The fee for the transfer of a license is raised from \$1.00 to \$5.00 per square mile, and 25 cents per thousand is added to the stumpage dues for hemlock. It is also provided that these regulations shall remain as at present for ten years.



# NOUVELLES TENDANCES ET MÉTHODES D'AMÉNAGEMENT

(TRAVAIL PRÉSENTÉ AU CONGRÈS INTERNATIONAL D'AGRICULTURE A VIENNE, EN 1907, SECTION DE LA SYLVICULTURE.)

Par M. de Gail, Conservateur des Eaux et Forêts à Epinal, France.

(Suit et fin.)

## METHODE DU QUARTIER DE REGENERATION.

Pour aménager une forêt d'après cette méthode, il faut tout d'abord procéder aux opérations préliminaires de tout aménagement, à la division en parcelles et au choix de la révolution.

Pour établir les parcelles, il convient de tenir compte plutôt de la nature des lieux que de celle des peuplements, et de choisir, autant que possible, des limites d'un caractère permanent, telles que crêtes, lignes de fond, chemins, etc.

La révolution n'a pas ici une durée aussi précise que celle qui lui est assignée dans le système des affectations; le chiffre qui l'exprime est bien l'âge des bois ayant atteint la dimension d'exploitabilité, mais ce chiffre n'intervient que comme un facteur dans le calcul de la possibilité.

Ces opérations préliminaires terminées, on procède à l'inventaire du matériel total de la forêt, et on en déduit la possibilité comme il a été indiqué précédemment.

C'est seulement à partir de ce moment qu'intervient le choix du mode de traitement.

Si l'on veut obtenir une futaie régulière, se rapprochant de celles qu'on a l'habitude d'envisager en appliquant la méthode des affectations, on établira un quartier de régénération.

A cet effet, on choisira, sans s'astreindre à ce qu'elles soient contigues, les parcelles dont les peuplements sont les plus aptes à être régénérés, et on prescrira de procéder à leur régénération pendant un certain laps de temps, qui ne sera pas forcément une partie aliquote de la révolution.

L'ensemble de ces parcelles formera le quartier de régénération ou seront assises, par volume, les coupes d'ensemencement, secondaires et définitives.

Sur le surplus de la forêt ou de la série, on assoiera par contenance des coupes d'amélioration, en opérant dans chaque parcelle, comme l'exige la nature du peuplement.

On peut, si on le désire, classer ces parcelles hors quartier, suivant l'ordre dans lequel on suppose qu'elles pourront être régénérées.

On peut même, si la durée considérée est une partie aliquote de la révolution, et si le quartier de régénération possède une étendue en rapport avec cette durée, établir un classement par affectations; dans ce cas, la méthode du quartier de régénération se confond à peu près avec celle des affectations, modifiée par le précomptage.

Pour appliquer un aménagement de ce genre, il faut chaque année, avant de marquer la coupe principale, établir le bilan des produits accidentels réalisés depuis l'année précédente, y ajouter le volume marqué dans la coupe d'amélioration de l'exercice, qui doit être martelée avant la coupe principale, et déduire le total de ces volumes du chiffre de la possibilité. On obtient ainsi le volume à enlever par la coupe de régénération.

Il peut résulter de cette manière de faire un inconvénient, c'est que le volume enlevé dans les parcelles hors quartier soit assez considérable pour réduire jusqu'à rien les coupes de régénération, et pour retarder ainsi au delà du terme désirable, la régénération du quartier désigné.

Mais cet inconvénient ne peut se produire que de deux manières: ou bien il résultera de réalisations forcées, telles que des exploitations de chablis, de bois dépérissants etc., et alors il n'y aura qu'à s'incliner, car il n'y a jamais lieu de sacrifier le bon état d'une forêt à des spéculations d'aménagement; ou bien il proviendra d'opérations mani-



festement exagérées, et alors il sera toujours possible d'amener à une plus saine conception des choses ceux qui auront effectué ces opérations.

#### METHODE DU TRAITEMENT VARIE.

Nous employons cette appellation de "methode du traitement varié" pour donner un nom à un mode de traitement qu'on désigne souvent improprement sous le nom de "jardinage modifié," alors qu'il n'a rien de commun avec le jardinage proprement dit.

Ce mode de traitement peut être appelé "varié" parce qu'il comprend, sur une surface souvent restreinte, des opérations de toute nature, appropriées à l'état des peuplements.

Il s'applique surtout à des peuplements irréguliers.

On peut être amené à effectuer, dans une même parcelle, par taches, des coupes d'ensemencement, secondaire, définitive, d'extraction, d'éclaircie, de jardinage.

Pour aménager une forêt destinée à être traitée de cette manière, on procède, comme il a été indiqué à propos de la méthode du quartier de régénération, à la division en parcelles, au choix de la révolution, à l'inventaire général du matériel, et à l'établissement de la possibilité.

Il ne reste plus ensuite qu'à déterminer l'ordre dans lequel les différentes parcelles devront être parcourues, et la durée que l'on devra employer à les parcourir.

Cette durée, qui est l'espace de temps moyen qui doit séparer deux passages consécutifs des coupes dans une même parcelle, est désignée sous le nom de rotation; elle est le plus souvent de dix ou de douze ans, et peut s'appeler alors "décennie" ou "duodécennie."

Dans l'application de cette méthode il arrive souvent que les coupes sont en retard, par suite de réalisations exagérées dans certaines parcelles, et qu'en conséquence la série entière n'est pas parcourue pendant la durée de la rotation.

Il y a là un inconvénient très-grave.

Pour y remédier, on fait intervenir la contenance jusqu'à un certain point dans la marche des coupes; c'est à dire qu'en se basant sur le matériel existant dans chaque parcelle, on détermine, par un calcul de proportion, la part de possibilité que doit fournir la parcelle pendant la rotation.

On établit ainsi pour chaque parcelle une sorte de possibilité partielle, dont le recrutement n'a cependant pas le caractère strictement, obligatoire qui est imposé à la réalisation de la possibilité totale.

Des transferts de parcelle à parcelle sont permis; le contingent à fournir par chacune d'elles n'est donné qu'à titre d'indication.

C'est surtout l'obligation de déduire du volume des coupes les produits accidentels, qui ne permet pas de fixer d'une manière incommutable le contingent à fournir par chaque parcelle.

#### CHOIX D'UNE METHODE D'AMENAGEMENT.

Le forestier chargé de procéder à l'aménagement ou à la révision de l'aménagement d'une forêt doit se garder de toute idée préconçue, de tout parti pris.

Seule, l'étude approfondie de la forêt doit l'inspirer et le guider dans le choix de la méthode à employer.

Si l'ancien aménagement a donné des résultats satisfaisants il faut le conserver; la continuité est un point capital dans le traitement d'une forêt.

Dans maints endroits, notamment en plaine, dans des forêts de feuillus, la méthode des affectations a réussi. Il faut l'y conserver. S'il s'agit d'essences dont la régénération doit être menée rapidement, si d'autre part il n'y a pas de grosses exploitations accidentelles à craindre, il ne sera même pas nécessaire de baser la possibilité sur le matériel total. On peut le faire cependant sans changer le plan général.

Dans beaucoup de forêts, malheureusement, la méthode des affectations n'a pas donné d'aussi bons résultats, et il serait difficile au forestier le plus expert, de dire, à l'aspect des peuple-



ments, dans quelle affectation il se trouve.

Ce sera alors le cas d'employer, soit la méthode du quartier de régénération, soit celle du traitement varié. On adoptera la première, si l'on dispose d'un nombre suffisant de parcelles renfermant des peuplements aptes à être régénérés, pouvant constituer un quartier de régénération, ce dernier dût-il ne pas être d'un seul tenant.

On aura recours à la seconde dans le cas contraire.

En tout état de cause, l'aménagement d'une forêt doit être établi de telle manière qu'il permette d'appliquer aux peuplements de toutes les parties de la forêt le traitement qui leur convient le mieux et de les mener ainsi dans les conditions les plus favorables jusqu'à leur terme d'exploitabilité.

## BRITISH COLUMBIA TIMBER PROBLEMS.

BY A. G. LANG.\*

Since the publication in the CANADIAN FORESTRY JOURNAL of the views of Prof. Roth and of Dr. Clark, the Government of British Columbia has definitely granted to special license holders extension of tenure during such time as there remains on the limits merchantable timber. The Government, therefore, has neither adopted Dr. Clark's recommendation to grant permanent tenure of timber lands, nor has it gone to the opposite extreme as advocated by Prof. Roth.

To hasten direct government administration of the timber areas must ever be the mission of the forester. His desire is to see the government sell logs, but not limits; sell trees, but not in unknown quantities. It is only the forester, too, who realises how hard is the task of imposing conservative methods on private holders. But ideal methods are possible only under ideal conditions. While any views expressed by Prof. Roth must ever be received by foresters with the heartiest respect and interest, in the

prevent destruction and waste, no great harm can result from limited tenure, but without adequate government supervision the time limit is utterly wrong and dangerous. As there is still no immediate prospect of such adequate supervision, the safer plan was to drop the limited tenure feature of the licenses.

Coming down to actual practice, on the ground of immediate effective conservation, much can be said in favor of extending the time for cutting on lands already licensed. Consider how immense are the timber areas of British Columbia and how extensive and scattered the lumbering operations, coupled with the fact that there are no trained foresters and that fire wardens are still political appointees. Neither here nor elsewhere can an efficient service of forest police be organized within a short space of time, but meanwhile by granting extension the good-will of the lumberman was secured, and every inducement given him to log less wastefully and to keep out fire.

Probably Prof. Roth did not learn that in this province the speculator by no means always got the best of the deal. The excitement of the boom led to a lot of poor timber and many overlapping claims being staked, from which, of course, the full fees were, and are still, received. But in any case the speculator in

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present case it must be submitted as probable that a closer study of local conditions would have led to modified opinions regarding the main point at issue. It is very doubtful if refusal of extension to license holders would have been to the advantage of the people or of the forest. Everything hinges on the question of supervision. Given an organized forest service to transferable licenses must always be considered the lesser evil. He at any rate pays his dues and must help conserve the forest, whereas fire, waste and the destruction of young growth not only reduce revenue, but may have ill effects reaching far beyond the mere question of wood crops.

The conditions, regulations and restrictions by which the extension of tenure shall be accompanied have not yet been made public. Fortunately there is every reason to feel confident that, in this and other questions, the final recommendations of the Timber and Forestry Commission will tend to essentially further the future welfare of the province. Meanwhile, where there is a prospect of reasonable safety from fire and where a large and increasing revenue is assured, as long as the Government retains full power of control over regulations and fees there is, in view of conditions prevailing elsewhere on this continent, little cause for grumbling.

As extension of tenure is a very big and valuable concession to the limit-holders, the Government may rightly in turn look for concessions from them. Amongst other things the Government may well require that all limits shall be surveyed and mapped within a reasonable time. This is at present optional before logging begins, but is immediately desirable in view of the introduction of more orderly methods and improvements in forest policy.

At present the speculator is in hiding behind the man the Government can have no desire to hit, but every desire to encourage, viz., the intending operator. Everyone knows this

dealer in transferable licenses is there, and everyone wants to see him hit, but how can that be done without crippling the lumberman? Neither an all-round raise of the license fee nor an additional tax on limits not being operated would meet the case, but a probably feasible means to the desired end would be the levying of a tax on sales or the imposition of a good stiff transfer fee. Naturally sales will in the future tend more and more towards a solid business basis. It is the present holders and some of the first purchasers from them who will make the unreasonably big sale profits.

#### LICENSE FEES.

In reality timber licenses pay no taxes at all. To Dr. Clark's: "The high license fee is essentially a method of paying for the timber on the instalment plan," one may add: "The so-called royalty tax is simply the balance of the price." The lumberman in the States has paid for and owns his timber outright, so that his government dues are no more than ordinary taxes. But the license holder in this province has not yet settled up with the Government, and where, as is often the case, the timber is worth \$50.00 and more per acre it cannot be said that payment by annual instalments of 22 cents per acre is very oppressive. After the licensee has paid a total in fees equalling the fair value (less royalty still due) of the timber, then a reasonable tax rate might well be substituted for the license fee.

The present method of levying fees works well for the Government as regards obtaining a fairly large and steady income with little trouble, but, as Prof. Roth points out, it is based on an unsound and unfair system seeing that the holder of a poor or inaccessible limit, awaiting better prices and transportation, may have to pay twice or thrice as much for his timber as the holder of a good limit on salt water who, in order to escape further fees, logs at once.



It would probably be quite practicable to grade the fees, if no more than four classes were adopted. Assessed according to stand and accessibility, first-class limits could better afford a fee of \$300.00 than the lowest class could one of \$50.00. It would be neither a long nor a difficult task for a number of Government cruisers to make the rough estimates necessary to place limits in the different classes, and the information thus obtained would in other respects be of value to the government. The scales of fees could be fixed in advance for a certain period of years. Where logging is carried on, or in the case of damage by fire, the limit would naturally drop into a lower class.

#### ROYALTY TAX.

Inequalities implied in the present method of levying the royalty tax are:

1. Logs costing dollars to bring to the mill pay just as much as those costing only a few cents to deliver.

2. Logs making, for instance, a thousand feet of clear cedar finish pay no more than logs making a thousand feet of knotty hemlock boards.

3. In the seasons when his product fetches a low price the lumberman pays just as much as in good seasons.

Dr. Clark's proposal to assess the royalty tax as a percentage of the F.O.B. value of the mill product still retains the first named defect: it neglects altogether cost of transportation to the mill.

To totally eliminate the above named defects and to really equitably grade the royalty tax would be a difficult task, requiring the permanent services of a large number of reliable men. Instead of this it might in the meantime suffice to levy the tax as a percentage of the current average price of logs in defined districts.

As lumber prices go up measures must be taken towards insuring to the public treasury a corresponding benefit. The dues must be raised, and foresters are agreed that the safest

policy is to raise the royalty tax and not the license fee, but various local authorities object. They say that in many cases the license-holders do not themselves operate and that the purchasers of the stumpage pay the royalty tax. If the tax should be considerably raised it would appear to be necessary to devise a way of collecting it from the owner of the limits, for while his profits may become very large, those of the millman and the logger will probably not increase.

#### RESERVES.

The government in 1907 withdrew from the market the remaining timber areas of the province, but has as yet made no announcement as to their final disposition. As private individuals have so generally endeavored to obtain for future holding large tracts of timber, it is more than likely that it would be good business on the Government's part to follow the same policy; to announce definitely that suitable areas shall be permanently reserved. This step, always desirable, has been rendered absolutely necessary by the granting of extension of tenure and consequent shelving (as regards a great part of the province's timber) of the privilege of state ownership and direct control. To shortsighted people the timber of British Columbia may seem inexhaustible, nevertheless the time will come when not only the settler, the small millman and logger but many industries will depend for their prosperity solely on the measure of foresight shown to-day. Reserved from alienation but not from any legitimate future demand or use such areas, instead of "Reserves" might well be named "Provincial Forests." And why should any government hesitate when, for keeping itself in blessed memory, no more enduring monument could well be devised?

Directly administered by the Government, and thus a field for the practical work of trained foresters, the Provincial Forests would not only become a source of much-needed,



accurate information, but would show such silvicultural results as would lead to the firm establishment of scientific methods throughout the province. On the Dominion reserves the Forestry Branch of the Interior Department, with practical ends in view, has already in a very short time done such technical work as to greatly raise the status of forestry in Canada.

In the somewhat distant future the Provincial Forests can be made an effective weapon in case of any attempted monopoly in the logging business. As at present, however, only a small proportion of the unalienated areas is accessible, it would seem to be necessary to reserve the right to compel cutting on licensed limits, when in the Government's opinion the market is designedly short of logs. Extension of tenure and greater safety from fire will in any event make holders less eager to operate and render high prices for logs probable.

#### LOGGING REGULATIONS.

In the absence of adequate supervision it would appear to be necessary to draw up for large divisions of the province appropriate logging regulations. If there were a sufficient number of trained men in government employment general regulations would be unnecessary, as the forester could then decide on the spot how best to minimize fire danger, avoid destruction of young growth and encourage reproduction. As things are, certain plain regulations and restrictions, appropriate to the climate and conditions of large districts, will at any rate be a step forward, are likely to be generally observed by the lumberman and will be a help to the probably small number of officers appointed at first.

The matter is complicated by the fact that in British Columbia there is a greater diversity of climate and general conditions than in any other province. At the coast, the demand for the lower grades of lumber being

poor, there is much inferior, but still merchantable, timber left in the woods. In the upper country, on the other hand, where growth is much slower, there is a good demand from the prairie country for the low grades. And here, to prevent slaughter of immature stands, a diameter limit to cutting is very necessary. Greater care, too, is essential in the upper country with regard to logging operations. There is more danger from fire, natural reproduction is less satisfactory than on the coast, and a drier climate makes all the more important, for the general welfare, the preservation of a forest cover on the mountain sides.

As operators have so far been subject to no control whatever, restrictions will naturally at first prove irksome. However, there is no need, and there can be no desire, to have them made burdensome.

#### FIRE PROTECTION.

Better protection against the fire danger is simply a matter of a larger number of good men and closer organization. Reasonable safety depends on an efficient patrol with such hearty co-operation from settlers, prospectors, lumbermen and railways that not only will fewer fires be started, but that those started will be discovered and extinguished in their incipient stage. Perhaps it is hardly realized here yet, that efficiency lies, not so much in general preparedness to fight big fires, as in constant systematic patrol; for the big fire is always proof that the main usefulness of the patrol has not been attained.

The railways are probably the worst offenders and enforcement on them of less careless methods would mean a very great improvement in the whole situation. It would be a revelation to the majority in this country to see the dense population, the incessant railway traffic and, with it all, the absence of unsightly burnt areas, in such well timbered



countries as Germany, Austria and Switzerland.

Undoubtedly in this province a much keener interest is shown than formerly, and this general awakening to the importance of fire protection is the more gratifying as it promises that, as the many other questions of forest policy become known and understood, they too will receive the

attention due them.

The whole forest situation in British Columbia is at a most interesting and critical stage. In this article no more has been attempted than to throw a little fresh light on such points as were, through this Journal, lately brought into prominence.

## CONSERVATION THE WATCHWORD.

Under the auspices of the Ontario Forest, Fish and Game Protective Association a meeting was held in the Convocation Hall of the University of Toronto on the evening of May 18th in which was strikingly brought out the fact that the preservation of the forest itself lay at the root of all efforts to conserve the fish, game, water-powers, the supply of pure water and the health of the community. The striking features of the meeting were the address of Hon. Clifford Sifton, Chairman of the Commission of Conservation, the suggestion of Dr. Byron E. Walker, that the Ontario Government should set aside a tract of timber land for practical work by the Faculty of Forestry of the University of Toronto, and the reply thereto and other important statements made by Hon. Frank Cochrane, Minister of Lands, Forests and Mines for Ontario.

The chair was occupied by Hon. Frank Cochrane, and on the platform, among others, were: Hon. Clifford Sifton; Dr. DuMoulin, Anglican Bishop of Niagara; Dr. Byron E. Walker, President of the Canadian Bank of Commerce; Sir William Mulock, Sir Mortimer Clark, Senator J. K. Kerr, Hon. J. J. Foy, Dr. B. E. Fernow, Hon. Thomas Crawford, President Falconer, of the University of Toronto; G. T. Blackstock, K.C.; A. Kelly Evans, Secretary of the Ontario Forest, Fish and Game Protective Association; W. F. Maclean, M.P.; Thomas Ritchie, Belleville, H. M. Mowat, K.C.; H. H. Dewart, K.C.; Rev. T. Crawford Brown, Col. W. H. Cotton and T. R. Whiteside, M.P.P.

HON. FRANK COCHRANE.

Hon. Mr. Cochrane, in introducing Hon. Mr. Sifton, declared that the conservation of resources would be of benefit not only to the coming generation, but also to the people of the present day. The Dominion Government should be given credit for appointing a commission which had so practical an object. Among its committees those on fish and game and public health could work well together, for in seeing to the interests of the anglers and sportsmen, the most healthful of occupations was being promoted. He felt that Ontario knew little of its resources, only one-fifth of its area being settled, while there were millions of acres where the white man was unknown. If it had been predicted some years ago that one township in Northern Ontario would bring forth products worth \$13,500,000 in a year, the statement would have been scoffed at. He added that it was the intention of Ontario to blaze the trail in provincial co-operation. "We have been taking stock," observed the Minister, "with a view to action. We are realizing that a strong and helpful policy may be evolved to grapple with our share of the conservation problem in conjunction with the promotion of public health. We propose, in the near future, to do something to dispel the erroneous theory that God made great tracts of our wild, unopened country only to hold the balance of it together."

HON. CLIFFORD SIFTON.

Hon. Mr. Sifton, who was received



with applause, said he was gratified to see so many leaders of public opinion present. Canadians had been living for some years in an age of exploitation or development, but unfortunately this exploitation was largely designed to benefit individuals, and the converting of national resources into stocks and bonds.

Never in the history of the world had natural resources been converted into money with so much energy and with such reckless disregard of the future as in the United States during the past forty years. Great districts had been suffered to become impoverished and others monopolized by large financial interests, but now a conservation movement had been launched there, a bitter controversy had resulted, because of the hostility of great financial interests, but in Canada, he was happy to say, such interests regarded conservation in a friendly way.

The movement was so wide in scope that its advocates were certain to make some mistakes, which were then magnified by enemies out of all proportion, but even in the United States the opinion of the most public-spirited men was in favor. Unless its principles were adopted in the near future there would be in the United States social disturbances in the nature of a national calamity.

Mr. Sifton hoped he would not be considered heretical if he expressed doubt whether the truly democratic form of government had made good. In the United States, which was the great example of such government, the great store of wealth was becoming monopolized by the few and the great mass of population was suffering from actual want. In view of the probable increase of population of from 25,000,000 to 30,000,000 in the next ten years and the rapid depletion of the fertility of the soil, the United States would realize in time that just as the poverty of the masses is the great problem in Britain, such a condition was rapidly coming about in the United States. One of the

greatest difficulties in Canada was to make the people realize their power to accomplish great results with comparative ease.

For years Canada's cry had been for population and capital to develop its resources. They were now pouring into Canada, and soon there would be an entire change in the national position.

"Enterprising capitalists of the United States are pressing upon us and reaching out to make use of our resources for their own purposes," he declared. "They will not come for a purely philanthropic purpose, but for their own financial advantage."

"The value of our resources is now appreciated by them. Every effort to seize upon them will begin. Capital, energy and business capacity will be freely employed to accomplish the desired end."

Canada stood on the threshold of a new national era. It was the duty of the country to get rid of the old shibboleths. Great national questions gave rise to political parties. To-day the greatest work was to arrive at a systematic plan to protect those things that were the means of subsistence of the population so that they could be made permanent assets, prevent their control by monopoly and allow them to inure to the public benefit for all time. If protective laws were framed Canada might safely welcome the incoming tide of population and capital.

Most of the conservation questions were co-related. The preservation of the forests affected the timber supply, climate, water-supply, water-power, fish and game—in fact, almost every natural resource.

Mr. Sifton sketched the history and work of the commission, pointing out that it was an advisory board and had no power to legislate.

"Thus they have very little power for evil," he commented. "They can only advise, and if their advice is not good, it need not be followed."

The committee on public health, of which E. B. Osler, M.P., was chairman, would meet on the following



Monday to consider the appointment of a medical officer to give expert advice.\* The pollution of rivers and streams was a menace to public health and had given rise to great epidemics. The commission would recommend legislation that would do away with the evil. A plan for treating tuberculosis, to which the government would give assistance in a large way, would be prepared.

#### GROWTH OF FORESTRY.

Dealing with the development of interest in forestry, Mr. Sifton said that ten years ago, when he had suggested adding a Forestry Branch to the Department of the Interior, he had been informed that there was no one in Canada regarded as a trained forester, but since then there had been a great change. The name of Dr. B. E. Fernow had become a household word, declared the speaker, amid applause. Public opinion had been aroused regarding forestry and this was a great victory.

The destruction of forests in Canada by fire was absolutely appalling. Fire was the great enemy of the forest, and the most prolific cause was railway locomotives. The Commission of Conservation had recommended to the Dominion Government an amendment to the railway act requiring every railway company to maintain an efficient fire-fighting force along every mile of its lines, and placing the companies under a very heavy penalty for fires started by their locomotives. It was a pretty radical measure, but he was pleased to be able to tell them it had met with favor from the Government, and that they might expect the legislation at the next session of Parliament.

The Commission of Conservation had been created in the midst of an epidemic of water-power legislation. Its work had been made difficult because of political questions involved, but those who had watched the Commission would say that it had clubbed

friends and foes impartially wherever its principles were involved.

The proposition to dam the St. Lawrence meant the transference of nearly all the power to the United States side of the river, and the Commission had felt that it was in duty bound to pour in a broadside against it.

"Perhaps it is too much to say that the scheme is dead," he added, "but if it is not, it has received a severe paralytic stroke, and it is likely before long to be in extremis. If it ever did reappear the Commission desired the vigilant attention of the press and the public.

"What I want to impress," said Mr. Sifton, "is that the Commission is non-partisan, composed of men who are endeavoring systematically to influence legislation affecting the great natural resources of Canada along the right lines."

The speaker spoke warmly of the good results achieved by the Ontario Forest, Fish and Game Protective Association, a work which was little known or appreciated by the public as yet, but which in ten or fifteen years would show splendid results. He believed the association should be aided by the patronage of the Ontario Government.

The Commission had urged upon the Dominion Government the establishment of an immense forest reserve on the eastern slope of the Rocky Mountains. The reserve would be 400 miles in length, and from 50 to 150 miles wide. "It will be the greatest forest and game preserve in the world," said the speaker, "and will be national property for all time to come." He suggested that Ontario take some such action relative to the district between Sudbury and Port Arthur. In Ontario there was a fine example of what could be done in Algonquin Park. He had been informed by trappers some years ago that the beavers were almost extinct, but, under care, they had grown so numerous in Algonquin Park that they had to be killed.

\* Dr. Chas. A. Hodgetts, Secretary of the Ontario Board of Health, was the choice of the Committee, which met on May 23rd last.



In conclusion, Mr. Sifton said that while the subject was comparatively new, it was one that appealed to public-spirited and educated men as a worthy one.

#### ONTARIO'S POLICY.

"We have now two such reserves," commented Hon. Mr. Cochrane, "and I am pleased to assure Mr. Sifton that before another year goes round the provincial government will probably adopt a policy under which each reserve as it is set apart will become likewise a fish and game preserve."

#### BISHOP DU MOULIN.

Right Rev. J. P. Du Moulin, Bishop of Niagara, said he had lived in Canada 48 years, and had travelled from Sydney to Esquimalt. Canadians had had given to them in trust a large, grand and most interesting country, and every patriotic Canadian ought to wish to see his country realize the full possibilities of its length and breadth. They should be better stewards of this inestimable trust. There were other contributors to the destruction of the forests by fire besides the railways—indiscreet picnickers and campers. There was only one thing to be done to realize the object for which the meeting was called, and that was to appeal to the sound sense and to the patriotism of the people to behave themselves well and to handle carefully their trust.

#### DR. BYRON E. WALKER.

Dr. Byron E. Walker, President of the Canadian Bank of Commerce, who is also Chairman of the Board of Governors of the University of Toronto, made a direct and telling speech. The importance of conservation was unquestionable, he said, but the trouble was in getting every man, woman and child to realize that it was not only an administrative and economic question, but also a great question of national morals and national character. He went on to say that the University of Toronto had offered to the Commission of Conservation the

use of its laboratories and other facilities that it might aid the Commission in its investigations in any possible way. He went on to urge upon the Minister of Lands and Forests (Hon. Mr. Cochrane) that the government should turn over to the University of Toronto a large area of timber-land in order that the Faculty of Forestry might try a practical experiment of turning that area into a dividend-producing perpetual forest, the results of which might go towards the cost of education in the province.

#### A DEMONSTRATION IN FORESTRY.

"It will not be hard to persuade the Government to act upon that suggestion," commented Hon. Mr. Cochrane promptly. "The subject is before them, and a practical and successful demonstration has been made of its possibilities by the forestry students of the Ontario Agricultural College."

Mr. Geo. T. Blackstock, K.C., moved the vote of thanks to Hon. Mr. Sifton, and Mr. A. Kelly Evans spoke on the need of still further efforts to arouse the public to the great interests at stake.

Mr. Evans drew attention to statistics showing revenue that the province derived from tourists alone who sought sport on Ontario streams. He believed that directly and indirectly \$5,000,000 had been attracted to the province last year by its game and fish. He also drew attention to the enormous and extravagant exportation of fish to the United States, and he questioned whether one of the first things the Commission of Conservation would have to consider was not whether it would be practical to prohibit entirely the exportation of fish to the United States.

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Readers of the CANADIAN FORESTRY JOURNAL were grieved to hear of the death of Mr. Stanislas Gagne, a contributor to the issue for December, 1908. Mr. Gagne was engineer in charge of a construction party on the Ha Ha Bay Railway, a large number of whom were killed by the premature explosion of a charge of dynamite.



## THE ROCKY MOUNTAIN FOREST RESERVE.

The entire eastern slope of the Rocky Mountains, from the International boundary northwards up to the middle of Township 61 west of the sixth Dominion meridian (longitude

provinces and other related objects. This is the effect of an Order-in-Council dated May 13th, 1910.

The total area of the district now reserved from settlement along the



Photo H. R. Macmillan

In the Rocky Mountain Forest Reserve. Mountains at head of Oil Creek, near summit of continental divide.

118 degrees west), is now reserved from settlement or occupation, and will be managed entirely with a view to the proper utilization and reproduction of the forest, the protection of the water supply of the prairie

eastern slope of the Rockies in Canada is about 14,400 square miles. This, however, includes Rocky Mountains Park (area, 4,500 square miles), Jasper Forest Park (area, 5,000 square miles) and the Waterton Lakes Park



(54 square miles in extent); these have been reserved for some time. The area now put under reserve for the first time is thus about 4,850 square miles (or 3,100,800 acres).

This entire area may, however, be looked upon as one reserve. Its area is thus over two-thirds that of Nova Scotia, over three-fourths that of the "southwestern peninsula" of Ontario (including under the term "southwestern peninsula" all counties west of, and including York and Simcoe, and enclosed by the Georgian Bay and Lakes Huron, Erie and Ontario), and over five and a half per cent. of the area of Alberta. Looking farther afield for a comparison of areas, one may say that the reserve is half the size of Maine, twice the size of New Jersey, one-third the size of the state of New York, or as large as Massachusetts, Connecticut and Rhode Island put together. Moreover, it is twice the size of Wales, half the size of Scotland and one-fourth the size of England and Wales combined.

The most northerly boundary of the Park is situated a short distance north of the 54th parallel of latitude and is some 360 miles north of the International boundary. The western boundary of the reserve is the boundary between the provinces of Alberta and British Columbia and the eastern boundary is an irregular line defined by the Order. The northerly limit is thus between forty and fifty miles north of the latitude of Edmonton and about a hundred miles northwest of Yellow Head Pass. The width of the strip set aside varies from ten to thirty miles from the International boundary up to the latitude of Calgary, and from there northward widens out to from 30 to 50 miles almost to the northern boundary. The boundaries of the reserve as actually constituted differ somewhat from those shown on the map of the proposed reserve as given in the report of the Commission of Conservation.

The lands included in the tract are for the most part elevated and rocky

and generally not suited for agriculture. They are however, covered to a large extent by a forest which is of great value for the supply of wood and lumber to the prairie country lying eastward from the base of the mountains, for the requirements of the coal mines and for the protection of the sources of the main streams of the central West.

On the additional 4,800 square miles just reserved the effect of the reservation will be to withdraw the lands from homestead entry or sale and the timber from disposal under license. The tract will still be open for the granting of timber permits to settlers, for mining purposes (for not more than one quarter-section), for cordwood, fence-posts, telegraph poles and railway ties and for small mills cutting timber for settlers only (for not more than one section for two years); also for mining leases for placer claims, for petroleum locations and for coal and other minerals, and also for permits to remove sand, gravel and stone from the submerged beds of rivers.

The regulations for forest reserves, under which the reserve is placed, forbid trespass, regulate the use of fire and prescribe proper precautions and penalties, require a permit for prospecting for minerals, prohibit grazing, except for settlers' cattle, provide for granting permits to cut hay and provide for careful cutting and the disposal of debris. Granting of leases for mining claims is subject to certain special provisions. Any person entering the reserve for the purpose of hunting or trapping must have a permit.

The reserve will be under the administration of the Forestry Branch of the Department of the Interior, and the far-seeing and progressive policy of the minister of that department, Hon. Frank Oliver, is a guarantee of the wise use of the reserve in the interest of the people of Canada.

The matter of forming such a reserve has been strongly urged at



different times by the Canadian Forestry Association, and it is gratifying to its members to know that the recommendations made by the Association have been adopted. The question of the reservation was discussed at considerable length by the Forests, Waterways and Waterpowers Committee of the House of Commons in the spring of 1909, when Mr. R. H. Campbell, Superintendent of For-

estry, gave much evidence in regard to it. In the committee's report it was strongly recommended that the reserve be created. Hon. Clifford Sifton, chairman of the committee and also chairman of the Commission of Conservation, has vigorously followed up the report of his committee, with the result that the much desired aim has been attained.

## REGULATING THE GRAND RIVER.

Readers of the FORESTRY JOURNAL will remember an article by Mr. W. H. Breithaupt, M. Inst. C.E., of Berlin, Ont., entitled "River Regulation, with Special Reference to the Ontario Peninsula and to the Grand River," in which he advocated the inauguration of measures for the conserving of the flow of the Grand and other Ontario streams.

Organized effort looking to this end has now been undertaken by the Grand River Improvement Association, which has for president Mr. J. P. Jaffray, of Galt, and for vice-president Mr. Frank Cockshutt, of Brantford. Mr. J. H. Hancock, of Galt, is the secretary. In March last a deputation from the association waited on Hon. Dr. Reaume, Minister of Public Works for Ontario, for the purpose of urging their object. The deputation was headed by Hon. Clifford Sifton, chairman of the Conservation Commission, and included, besides the officers mentioned above, Messrs. F. S. Scott, Wm. Robinson, and James Webster, Galt; Mayor Wood, of Brantford; B. Zeaman and H. C. Edgar, Preston; it was accompanied by Messrs. J. H. Fisher, H. G. Lackner, M.D., Geo. Pattinson, J. J. Craig, and W. S. Brewster, M.P.P.'s, respectively, for North Brant, North Waterloo, South Waterloo, East Wellington and South Brant (constituencies which are chiefly interested in the proposed work). The deputation was given a sympathetic hearing.

The city of Brantford has been the

greatest sufferer from the freshets of the river, and has expended the sum of \$160,000 in its endeavours to prevent such damage. By far the greater part of the city, of course, is not at all affected by the floods, the area so affected being not more than ten per cent. of the total area of the city.

This area has been protected by a series of dykes which have been extended from time to time until they are now two and three quarter ( $2\frac{3}{4}$ ) miles in length, running along the bank of the river at an elevation of about three feet above the extreme flood level. To quite an extent the material from which the dykes are built has been obtained from the bed of the river, the channel thus being deepened at the same time. The width of the top varies from four to six feet and the slope of the sides is usually  $1\frac{1}{2}$  to 1 on the land and 2 to 1 on the river side. In portions of the river subject to the action of the current the bank has been protected by a series of timber cribs and in other places rip-rapped with stone.

The main river channel at the city bridge has been widened 100 feet, a new span added to the bridge and a sluiceway dam, having openings 100 feet in width has been added to the main dam across the river. The height of the water at flood time can be regulated at flood time.

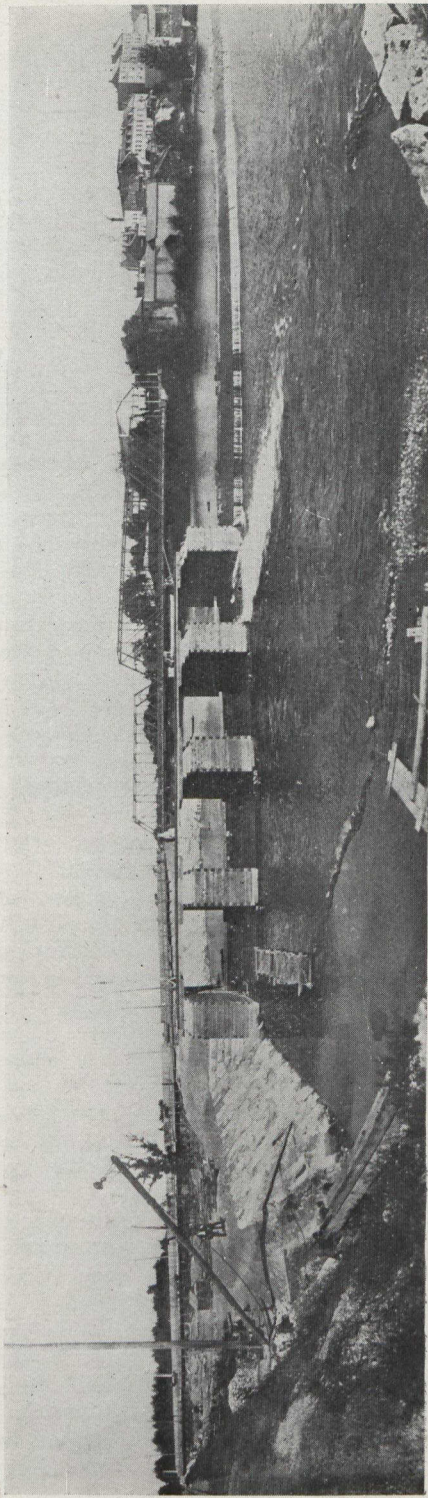
Mr. Breithaupt has kindly supplied the JOURNAL with information to supplement that published in the





The Grand in Freshet Time. Scene at T. H. & B. Railway Station, Brantford, April 2nd, 1900.

Photo Park & Co., Brantford



Bridge, and Sluiceway Dam on Grand River, Brantford,

Photo Park & Co., Brantford



article above referred to. He writes as follows:

"The length of the Grand River, along its windings, from its source in Melancthon Township to its outlet into Lake Erie, below Dunnville, is about 160 miles. Its general course is south. Its tributaries, in their order from up stream, are the Conestogo from the west, the Speed-Eramosa from the east, and the Nith from the west.

Good possibility for storage on a large scale exists on the main river in the deep and narrow valley below Elora, and above Fergus, as well as at sites further down; and the Nith appears to offer excellent facilities for storage.

"With storage capacity of two and one-half to three billion cubic feet increase of low water flow to the extent of 350 or 400 cubic feet per second could be effected. This would at once double the minimum-flow horse-power of the present water-power developments on the lower river, and give effective flood control by enabling catchment of the destructive part of the high-water flow.

With such minimum flow numerous other water powers, now of no value, could be developed along the upper river.

"Restoration of the original condition of the head-water plateau would require consideration of an area of at least 400 square miles to have any material effect. While this would involve great cost it is open to question whether, in view of the magnitude of the interests involved, it would not prove economical in the end. Another method of regulation is by storage.

"The water powers on the Grand River are very considerable. With the dwindling of low water flow some of them have become practically useless and those still in use are greatly impaired. These latter are on what may be called the lower river from Galt downwards. The heads of water made use of are:

"Galt, 8½ ft.

"Paris, 14 ft.

"Brantford (two developments), 16 ft. and 32 ft.

"Caledonia, 7 ft.

"Dunnville, 6 ft.

## REFORESTATION IN NORTHUMBERLAND AND DURHAM.

In February last representatives of the united counties of Northumberland and Durham, Ont., waited on the Ontario Government in reference to reforestation of the fifteen thousand acres of sand-lands in those counties. What the deputation asked for was that the Government advance the money necessary to purchase and reforest the lands, and do the work of replanting under their own officers. The united counties would pay the government the interest on the money so expended, and as soon as the timber had reached marketable dimensions the yearly growth would be sold and the government reimbursed. The counties would then have the profit after the government was repaid.

The deputation was received by Hon. James Duff, Minister of Agriculture, and Hon. Frank Cochrane, Minister of Crown Lands, and was given an unusually lengthy interview. The deputation was introduced by Mr. J. H. Devitt, M.L.A., of Blackstock. The speakers included Warden A. L. Boyce, of Dartford, ex-Warden A. A. Powers, of Orono, and Reeve A. A. Colwill, of New-

castle, who presented the case for the deputation. Others who spoke included Messrs. C. J. Thornton, of Kirby; S. Clark, M.L.A., of Cobourg; S. Nesbitt, M.L.A., of Brighton, and J. J. Preston, M.L.A., of Bethany.

The other members of the deputation were Messrs. Alex. Weatherson, Warkworth; Joseph Hickson, Mount Horeb; Charles Sherwin, Roseneath; Alex. Wight, Bowmanville; R. Caldwell, Osaca; James Byers, Blackstock; Daniel McColl, Wooler; Herbert Rosevear, Port Hope.

Mr. Colwill stated that the deputation believed that the project was thoroughly feasible and a safe financial undertaking. This led Hon. Mr. Cochrane to ask why the Counties' Council was not willing to finance it itself. Hon. Mr. Duff stated that the members of the York County Council had asked for power to purchase waste land in order that they might re-forest and control such land themselves. The York County Council did not expect any financial assistance from the government other than



possibly, the giving of a few trees for re-forestation purposes.

Mr. Colwill replied that in the case of Northumberland and Durham the project was too big a one for the Counties' Council. He pointed out that the work could only be undertaken to the best advantage by a bureau of forestry which would have a continuity of purpose impossible with the average county council. He contended also, that the government was in a better position to obtain the money required, at reasonable rates than was a small municipal body.

Ex-Warden Powers presented the case clearly and forcibly for the Counties' Council, having given it a great deal of attention and study. He stated that the method of re-forestation was one that had commended itself to the Counties' Council after careful and thorough consideration on several occasions. The proposal had been discussed at local meetings held throughout the united counties and had been everywhere endorsed. It was one which had

been endorsed as thoroughly practical and feasible by Dr. Fernow, Dean of the Faculty of Forestry in Toronto University. Public sentiment in the united counties, he had been informed by Prof. E. J. Zavitz, of the Ontario Agricultural College, Guelph, was more advanced on the forestry question than anywhere else in the province except, possibly, in Norfolk County, where the government had a reserve. He expected, therefore, that the government would give Northumberland and Durham the first consideration when dealing with this forestry question.

Both Mr. Thornton and Mr. Colwill gave evidence that the land was suitable for the growing of splendid pine. Mr. Thornton claimed that trees, if given proper care, would make splendid growth within 30 years.

Hon. Mr. Duff, on behalf of the Government, expressed their realization of the importance of the matter and promised careful consideration of the proposal.

## SOME FOREST FIRES OF 1910.

The unusually dry season has made the spring of 1910 a specially bad time for forest and prairie fires in the western provinces.

Towards the end of April a fire occurred at the head of Willow and Trout Creeks, in the Porcupine Hills, Alta., which burned over approximately 140 square miles, which was largely covered by young timber and some small areas of mature timber, the loss amounting to two and a half to three million feet of timber. Some notoriety was given to the fire by an interview which appeared in a western paper to the effect that the fire rangers were not doing their duty, as their pay did not begin until May 7th. The person interviewed subsequently, when challenged, declared this part of the report erroneous. As a matter of fact, the rangers were hard at work all the time, and had been on duty for the greater part of April. The only damage done to personal property by the fire was the destruction of one haystack. The settler from whose land the fire started was subsequently prosecuted and FINED THE SUM OF \$10.!!

Fires were also reported from the vicinity of the Riding Mountain Forest Reserve, and in the district north of Prince Albert.

During the last week of May a bad fire raged in the country traversed by the C. N. R. Prince Albert Branch some seventy miles west of the Saskatchewan-Manitoba boundary. At Mistatim the Cowan Construction Co.'s camps and sawmill were destroyed on the afternoon of May 28th, together with 17 C. N. R.

freight cars, some buildings and a quantity of lumber. The Cowan Construction Co. will, it is reported, rebuild their mill, with a view of utilizing the burned timber immediately. About a hundred and fifty square miles of timber have been fire-swept. Traffic on the railway was stopped for about a day. The fires were finally extinguished by heavy rains. The Great West Lumber Co., of Greenbush, Man., lost seventy-five thousand logs, which were burned on the bank of a tributary of the Red Deer River. The fire burned along the railway on both sides, extending back from two to two and a half miles. It would seem that the C. N. R. Co. and the Cowan Construction Co. are themselves largely to blame for their loss. The C. N. R. Co. undertook to clean up their right-of-way in the spring, and, indeed, informed the Superintendent of Forestry that this had been done, when, in fact, scarcely anything had been done. The Cowan Construction Co. also failed to obey the instructions of the Department to clean up the debris around the mill. Chief Ranger Davis, of Dauphin, Man., was in charge of the 150 men who were fighting the fire. The damage is variously estimated at from half a million to a million dollars.

Mr. J. K. Cornwall, member of the Alberta Legislature for Peace River, reports that large forest fires have been raging in the country around Lesser Slave Lake. He estimates the amount of damage at half a million dollars. A severe wind storm early in May blew down much of the damaged timber.



A number of fires occurred in and near the Riding Mountain Forest Reserve which kept the rangers busy, but, as far as is certainly known, little damage seems to have been done.

A very serious forest fire occurred about the middle of June a short distance west of Port Arthur, the chief damage being done in Conmee, O'Connor and Paipooonge townships. The damage to standing timber is said by the despatches to amount to hundreds of thousands of dollars, and many settlers have lost all they owned. Several persons were reported to have perished, but all these have been found to have escaped.

Extensive fires are reported from North Minnesota, Northern Wisconsin and Upper Michigan. Near Grand Marais, Minn., many settlers were burned out. The towns of Bemidji and Walker, Minn., (near the latter of which is the State Tuberculosis

Hospital) were threatened, but the fires were checked by rain.

Instances such as many of those given show, not only the need of more efficient legislation on the subject, but also, and in a far greater degree, the necessity of rousing public interest to the problem presented by the forest fires. Not only should railways be warned about the danger from locomotive sparks, the leaving of debris on their right-of-way and other offences, but power should be conferred of penalizing them for neglect of such warnings. Evidently the intelligence of some western magistrates needs to be appealed to, also, so that, when there is brought before them a culprit responsible for the setting of a fire causing the destruction of millions of dollars worth of timber, he will not get off with a mere "flea-bite" of a fine such as that imposed on the Porcupine Hills offender.

## WATERWORKS PLANTING.

To the city of Guelph, Ont., belongs the credit of being the pioneer in Canada in one line of forestry work, namely, the planting of waterworks catchment areas with forest trees.

The city leads Canadian municipalities as regards municipal ownership, owning and operating, as it does, its waterworks system, gas and electric light and power plant, street railway and sewerage systems, and owning also some sixteen miles of railway which is now operated as part of the Guelph and Goderich branch of the C.P.R.

The waterworks system (established some thirty-two years ago) is in the hands of a commission of three elected members, namely, Messrs. G. B. Ryan, R. L. Torrance, and Geo. Hastings, Mayor of the city, with Mr. J. J. Hackney as manager.

A short time ago the commission found that their source of supply (springs situated near the River Speed, which at times of need served as an auxiliary source of supply, just within the city limits) had become insufficient to supply the increasing needs of the city. After investigating the problem, they acquired, about a year ago, some 168 acres of land near the village of Arkell and about four and a half miles from the city. On this land were situated springs from which the water runs by gravity to the city.

Of the 168 acres about one-fourth to one-third is already forested, the growth being chiefly white cedar, with scattering balsam, fir and a few white pine. The trees grow chiefly on low land along the river. The soil is gravelly loam to clay.

The trees were planted at a distance about five feet apart each way, about 1742 trees being thus required to the acre.

About forty thousand trees were used, distributed according to species as follows:— White Pine, 15,000; Norway Spruce, 10,000; Scotch Pine, 10,000, and Larch, 5,000. The white pine used was material grown on the provincial government's seed-beds.

The total area planted was between 25 and 30 acres. So far the trees seem to be doing well.

The primary purpose of the planting is to protect the catchment area of the waterworks. In time some features of park management may be introduced, and possibly some income may in future be derived from the plantation.

The estimated cost per acre is as follows:  
1,742 trees at \$3 per thousand. . . \$5.23  
Cost of labor, etc. . . . . 8.00

Total cost of planting. . . . . \$13.23

No account is taken of the rental value of the land or of interest on the cost. The land, if not applied to forestry purposes, would, of course, simply lie idle.

The planting has been done under the supervision of Mr. E. J. Zavitz, of the Ontario Agricultural College, to whom belongs much of the credit in connection with the inauguration of the enterprise.

The cities of Woodstock, Ont., and Brantford, Ont., are also said to be contemplating similar planting, and will in time, no doubt, follow the lead of the Royal City.

Mr. E. J. Zavitz and Mr. J. Lawler addressed the County Council of Simcoe County, Ontario, at its closing session, on June 11th, on the problem of reforesting the 60,000 acres of waste lands in that county.



## SWISS FORESTRY.

Switzerland recognized the benefits of forest protection and development 600 years ago when the forest ordinance of Bern was issued. The Sihlwald of Zurich, one of the most perfectly managed and most profitable forests in the world, has been handled under a working plan since 1680. The little Alpine republic still reports progress in forest work, and the United States consul writing from St. Gall says:—

“The government of Switzerland has so carefully regulated the timber output that it has never been permitted to exceed the natural growth. The thick growth of timber on the mountain sides, purposely allowed to become dense, has perceptibly lessened the danger and frequency of avalanches and landslides, which in former times were so frightfully destructive. To control the spring floods in the rivers and streams, massive dams, fortified by thickly planted trees, have been erected at exposed places. In the extraordinary attention paid to its timber lands, the government has taken into account also the necessity for sheltering and pasturing cattle, the maintenance of the soil, the roads, and the natural springs, climate, and the control of mountain streams.

“The actual forest area of Switzerland comprises 2,205,508 acres, 21.48 per cent. of the entire surface of the country, 77,004 of which belong to the state and 2,128,504 to the cantons, communes, municipalities, and private corporations. Seven hundred and eighty-one acres of the state forest are set aside as a nursery. From this nursery in 1908 over 22,000,000 young trees were taken and transplanted in the various forests.

“Swiss forests are classed as ‘protected’ and ‘non-protected.’ The former are those which are situated on mountain slopes where the imminence of washouts, stone and ice chutes, landslides and avalanches calls for the constant exercise of extraordinary care and attention. The ‘non-protected’ are those on comparatively level ground requiring only ordinary attention to keep them in good condition. Because of the character of the country, the great majority of the forests are ‘protected.’

“The law provides that ‘the forest area shall not be diminished’ and that all forests shall be maintained in a fairly dense condition. Even in private forests close cutting or clearing up is strictly forbidden, especially in exposed places without the consent of the federal authorities, and then only in small areas and when prompt reforesta-

tion is guaranteed. Trees for cutting are carefully selected by forestry experts.

“Through the forests there are excellent roads, made largely by the cantonal authorities. The year 1908 was marked by such activity in road construction that the state, which bears a proportion of the expense, paid to the cantons the sum of \$46,634.00 on their account alone.

“Spruce is the most important tree in the Swiss forests, and then in order of their importance come the white fir, beech, larch, pine, cypress and a few other varieties.

“It is not to be presumed that the revenue from the entire Swiss forest area can be approximated by taking as a basis the earnings of the St. Gall or Winterthur forests, which have been for many years under most intelligent and excellent management, but the universal opinion among forestry officials is that the jealous care with which the Swiss timber lands have been guarded has vastly benefited both national and cantonal treasuries from the financial point of view.”

“The principal revenue derived from the Swiss forests is from the lumber output, there being no manufactures of resin, turpentine, and similar by-products. To offset the cutting, there were planted in 1908 23,096,225 trees, of which 18,031,590 were conifer and 5,064,635 deciduous, and no less than seven tons of seed were sown.

“Statistics of the receipts and expenditures of all forestry work in the country are not available, but a couple of cases may be cited which show gratifying returns. The total receipts from the sale of wood in 1908 from 2,421 acres of state forests in the canton of St. Gall are given as \$24,457.37 and the expenditures as \$7,104.81, leaving a clear profit of \$17,352.56 (an average of \$7.17 per acre). In the forests of the town of Winterthur, amounting to 2,833 acres, the receipts were \$51,174.63 and the expenses \$21,634.50, leaving a net profit of \$29,540.13, or an average profit of about \$10.42 per acre.

### MUNICIPAL TREE-PLANTING IN THE WEST.

The prairie city of Saskatoon, Sask., will plant six or seven thousand trees on its streets this year. The work is under the direction of the Park Commissioners. The town of Indian Head, Sask., is also carrying on a tree-planting campaign.



## CARE OF ORNAMENTAL TREES.

*The Care of Trees in Lawn, Street and Park.* By Dr. B. E. Fernow, Dean of the Faculty of Forestry, University of Toronto. Henry Holt & Company, New York. Price, \$2.00 net.

To use the trite phrase, this book "fills a long-felt want," viz., the need of some "satisfactory, comprehensive treatment of the subject for amateur planters of trees."

To few (perhaps to no other) has it been granted to have so prominent a part in the introduction of forestry to an entire continent, and in this regard the author occupies a position that is quite unique. It is scarcely surprising that Dr. Fernow, tho avowedly a forester, and as such interested in growing trees from a utilitarian standpoint, should have acquired a fund of information regarding the growing and care of trees from the æsthetic standpoint, information which it is the purpose of this work to pass on to others. Besides his experience in the care of parks (notably as a member of the commission on the reconstruction of Central Park, New York), the writer has not hesitated to make use of many bulletins bearing on this subject and other literature such as Count des Cars' work on "Tree Pruning"—aid which is freely acknowledged.

The book opens with a short introductory chapter, after which a chapter is devoted to the "Characteristics, Structure and Life of Trees," written in a style that makes it exceedingly interesting to any tree-lover. The science of tree growth is outlined in such a way as to relate the various parts of the subject to practical considerations. We are told, for instance, of the need of the tree, roots as well as crown, for air and the injury and, in some cases, death of the tree when deprived of it, the tree's need for light and the relation of this fact to the proper placing of trees, and other causes and consequences.

The diseases of trees are then taken up, and the different kinds of fungi, their mode of entrance into the tree, and their char-

acteristic damages are discussed, also the classes of insects that attack trees and their classification. A chapter on the recognition of the source of damage to the tree (diagnosis) follows, giving instruction how to recognize, not only the consequences of insect and fungus attack, but also the effect of "physiological diseases," induced by malnutrition or other unfavorable conditions, such as the presence of poisonous gas near the roots (which often happens in cities where gas mains have become leaky).

The control of these "physiological diseases" and treatment of mechanical injuries is taken up and considerable attention given to the matter of pruning. The control of fungus parasites and injurious insects is then discussed.

Care in planting and transplanting trees is given special attention; "transplanting a tree from one site to another is a surgical operation during which the patient needs special attention" the author remarks. A brief chapter follows on "Æsthetic Forestry or Woodland Park Management."

A large part of the book is devoted to the consideration of the choice of plant material, and lists of trees desirable for shade and ornament, and of shrubs and plant material for special purposes are given at length.

The book is illustrated with several full-page illustrations and a hundred illustrations in the text, and the mechanical part of the work is worthy of the publishers. The dedication of the work to Dr. Wm. Saunders, Director of Dominion Experimental Farms, is a well-merited honor and will approve itself to members of the Canadian Forestry Association, of which he has been a director from the first, and to Canadians generally.

The volume will be a welcome and valued addition to the library of any owner and lover of trees and the name of the author is a guarantee of the soundness of treatment of the subject.

## WASTE LAND PLANTING IN EUROPE.

In parts of Canada the problem of putting to the most profitable use lands that are now lying waste is coming prominently into view. Such a case is that of sand land planting in Ontario, where a good start has been made through the efforts of Mr. E. J. Zavitz, Forester to the provincial Department of Agriculture.

In this connection it is interesting to note what has been done along this line in European countries where the problem has long been studied. Not only

has much been done on that continent in planting cut-over lands, but the problem of establishing a forest cover on dunes and other waste lands—in short, on all land which has a greater value for producing timber than for other purposes—has been vigorously and persistently attacked.

France has been one of the foremost European countries in reforestation, especially in the mountains, where planting has been a powerful factor in controlling torrents and regulating



streamflow. The State each year buys uncultivated lands in the mountain regions, and up to January, 1907, it had acquired 503,000 acres in this way. Communes, associations, and private individuals are also assisted in reforestation work by grants of money, and be supplies of plants and seeds. Altogether 249,000 acres have been planted through this public assistance. Complete exemption from taxation for a long period of years is granted in case of plantations made on the tops and slopes of mountains. A reduction of three-fourths for all land planted or sown, whatever its situation, is also made.

One of the most striking examples of the results of planting waste lands is furnished by the reforestation of the "Karst" in Austria. The Karst was a stretch of barren lime-stone lands comprising some 600,000 acres in the hilly country along the Austrian shores of the Adriatic Sea. For centuries it had furnished the shiptimber and other wood supplies of Venice, but excessive cutting, together with burning and pasturing, had left it a waste almost beyond recovery. In 1865, the government began to offer help to land owners who would undertake forest planting there. Taxes were remitted for periods of years, technical advice was given, and plant material as well as money were supplied.

At present over 400,000 acres, or two-thirds of the Karst are under forest, partly as a result of planting, at a cost of eight or ten dollars an acre, and partly as a result of protection which made natural recuperation possible. In 1884, Austria also passed a reforestation law to control torrents. This law carries an annual appropriation of \$100,000, and extensive planting work has been successfully carried out under it.

Germany as a whole does not have so much waste land which it is necessary to plant. The Germans have been practicing forestry for so long a time that the greater part of the available land is already covered with forests. Some work, however, is done along this line. During the six years from 1901 to 1906 about 300,000 acres of land suitable for forestry were acquired in Prussia, although a part of this was already wooded. All possible assistance is also given to communes and private owners in planting work, and in 1908, \$110,000 was appropriated for this purpose. Baden endeavors to encourage forest planting by providing that all private waste lands, pastures, fields, and uplands planted with timber, remain free from taxation for a period of twenty years from the beginning of the first year of planting.

In Denmark no fixed appropriation is made for acquiring waste lands, but in the last twenty-five years over 43,000 acres have been purchased, and recently the annual cost for planting has amounted to over \$15,000. Tree planting on the dunes along the coast of Jutland for the purpose of protection from drifting sand is continuously going on. In addition to the work which the State is doing, annual grants are made to the Danish Heath Society, the special object of which is to encourage tree planting in Jutland. That the work pays is shown by the fact that during the last ten years the average annual profit from all State forest lands has been nearly \$100,000.

Other European countries are constantly doing similar planting work. Switzerland, for example, creates protection forests wherever possible by planting, and whenever forests are converted into farming and pasture lands an equal area may be ordered reforested. The great empire of Russia likewise spends large sums annually in planting. Belgium and little Holland are also active in making their waste lands productive through forest planting.

Putting every acre of land to its best use is the idea about which the whole policy of the conservation of natural resources revolves, and in the future the planting up of waste tracts in Canada and the United States is sure to be carried on extensively by private owners as well as by federal, provincial and state authorities.

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EARL GREY It is expected that in the  
GOES autumn His Excellency the  
NORTH. Governor-General will make

a trip from Norway House, at the head of Lake Winnipeg, to Port Nelson (probably via the Hayes River), thence by steamer to Fort Churchill, and through Hudson Strait down the Labrador coast to St. John's, Nfld. He may be accompanied by Sir Ernest H. Shackleton, the Antarctic explorer.

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THE HAND Portions of Algonquin  
OF THE Park are now being lumbered  
SPOILER. over for the hardwood

and some species of coniferous timber left on them by former licencees. Negotiations between the Provincial authorities and the licencees were fruitless, and the licencees, whose right to cut was given by statute in 1900, are proceeding with the cutting.

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Mr. R. H. Campbell, Superintendent of Forestry, spent the months of May and June in the West.



## TO PREVENT FIRES ALONG RAILWAYS.

The Forestry Committee of the Commission of Conservation at its meeting on May 2nd last considered the question of the prevention of fires set by railways, and the following recommendations were made:—

“That to the provisions of the railway act already on the statute books relating to fires, the following clauses be added:

“For each and every case in which a fire is started by sparks from a railway locomotive, and either begins outside of the right of way or spreads therefrom to the adjoining land, the company which is operating the railway at the time when the fire is started, as aforesaid, shall be liable to a fine of one thousand dollars, to be recovered by summary prosecution before a stipendiary Magistrate or two Justices of the Peace;

“Provided, that it shall be a sufficient defence against any such prosecution if it be shown by the railway company:

“(1) That the company has used upon the locomotive the best available modern appliances for the purpose of preventing sparks spreading therefrom;

“(2) That no negligence has been shown

by the engineer or fireman of the locomotive, or any other servant of the company, conducing to the starting or spreading of the fires; and

“(3) That the company has maintained an efficient staff of fire-rangers properly equipped with all suitable appliances for fighting fires and proper and efficient means of travelling from place to place along the line of railway, and that the said staff has been prompt and diligent in taking all possible means to prevent the fire from spreading.

“The committee further recommends that the act respecting Government railways be amended to provide (1) that the Government railways maintain an efficient staff of fire-rangers properly equipped with all suitable appliances for fighting fires and proper and efficient means of travelling from place to place along the line of railways; and (2) that the Government railways shall provide free transportation for all provincial fire guardians properly certified as such, while travelling in the discharge of their official duties.”

## EFFECT OF EXCESSIVE DEFORESTATION.

“What has been the effect of the tremendous consumption of timber upon our forests?” This question is often asked by people in various sections of the country, and often the information of the average man on the subject is not definite enough to enable him to make a clear and satisfactory answer. R. S. Kellogg, assistant forester, engaged upon statistics in the United States Forest Service, in giving a concise answer to the important question says:—

“Now our annual requirements exceed 40,000,000,000 feet of timber, 100,000,000 crossties, 4,000,000 cords of pulp wood, besides great quantities of other forms of forest products, such as firewood, posts, poles, mine timber, etc. The per capita consumption of lumber in the United States was 215 board feet in 1850; now it is 470 board feet.

“One forest region after another has been attacked. With the exception of Maine, the New England States are cutting mostly second or third growth timber. The box factories there take white pine saplings down to 6 inches in diameter. The so-called ‘inexhaustible’ white pine forests of Michigan are gone, and millions of acres of cut-over and burned-over land have gone upon the delinquent tax list. Michigan supplied 23 per cent. of the lumber production of the United States in 1880, and less than 5 per cent. of it in

1907.

“The value of the lumber production in Michigan since 1849 has been 50 per cent. greater than the output of gold in California, and it has all taken place without a thought for the future. The cream of our hardwood is gone, and it is becoming more and more difficult to get in sufficient quantity the high grades of oak, yellow poplar, ash and hickory that our great manufacturing industries require. The South’s once great supply of yellow pine is rapidly giving way before axe and saw, fire and tornado. Half a generation more will, in most places, see little but remnants left of the Southern forests, and in that time the Pacific Coast supplies will be heavily drawn upon.

“Ours is primarily a wood-using civilization. Despite the introduction of substitutes for wood in the form of stone, cement, concrete and steel, our consumption of timber has constantly increased from the earliest days up to the present time. The prices of forest products have risen more rapidly than those of other commodities. According to the reports of the Bureau of Labor, the quoted prices of the leading kinds of lumber on the New York market have risen twice as much in the last ten years as the average increase in all commodities. This indicates that the supply of timber is not keeping pace with the demand.”



## SECRETARY LAWLER'S LECTURES.

Since returning from the New Brunswick Convention the Secretary has been chiefly occupied with office work, but he has delivered lectures before the Public School Principals' Association of Toronto, and also the senior pupils of the Ryerson, King Edward and Queen Victoria Schools of Toronto, from 200 to 250 pupils and 10 to 12 teachers being present on each occasion. On April 22nd he went to Newmarket, Ont. On the way he stopped at Aurora and spoke briefly to the pupils of the High School.

At Newmarket the lecture was held in the Town Hall. The chair was occupied by Hon. E. J. Davis, ex-Minister of Crown Lands for Ontario, who has given a great deal of attention to the subject of forestry. Among those present were Principal Firth, of Pickering (Society of Friends) College, and a number of the students, and Mr. E. A. Bogart, of the staff of the Bank of Montreal, who is an enthusiastic horticulturist and believer in forestry. At the conclusion a vote of thanks was moved by Mr. J. D. McKay, editor of the Express-Herald, and seconded by Mr. H. S. Cane, of the William Cane & Sons Company, Ltd., manufacturers of woodenware.

It was pointed out that even in York County, which is generally supposed to be wholly arable, there were stretches of sand lands which are now in danger of becoming waste. In some instances these farms have been practically abandoned. The particular district referred to lies about thirty-five miles north-east of Toronto in the township of East Gwillimbury.

On the following day the Secretary visited the garden of Mr. Bogart, where he is growing a number of conifers, particularly junipers. He then went through the factory of the William Cane & Sons Company, and saw the processes of manufacturing pails, tubs and woodenware.

The Secretary was also shown over the line of the Newmarket Canal where there is a stretch of four miles of public land between Newmarket and Holland Landing which could readily be made into a demonstration forest either by the Dominion or Provincial Governments. The main line of the Grand Trunk between Toronto and North Bay runs along this strip for the whole distance so that a forest there would be seen by thousands of people every month.

## FORESTRY STUDENTS IN THE FIELD.

The practice work of the students of the Faculty of Forestry of the University of Toronto was carried on this year on the limits of the Georgian Bay Lumber Company in the Townships of Wood and Baxter in the district of Muskoka, Ontario. The camp was on Nine Mile Lake, three miles south of Bala, which is one of the tourists' points of Muskoka. It was thus unusually easy of access, and in fact the flag station called Nine Mile siding was within 200 yards of the camp. The professors and students were lodged in the camp of the lumber company which was vacated by the men starting on the "drive" just as the camp began.

Dr. Fernow, Dean of the Faculty, Mr. A. H. D. Ross, Dr. C. D. Howe, Mr. J. H. White and about twenty students left for the camp on April 22nd, and, after completing the course, returned to Toronto on Saturday, May 14th.

The location was well suited in many respects for the purpose of a foresters' camp; it was on a stand of pure white pine, and the country is thoroughly characteristic of the Laurentian Plateau of northern Ontario. The limit is fifty square miles in extent, and has been lumbered on for some years, so that there was good opportunity for studying the effect of cutting and the possibility of new growth. The territory appears to be a succession of rocky ridges running from northwest to southeast

between which are to be found swamps, muskegs and small lakes.

The work of studying trees and tree types, surveying and the various methods of estimating the amount of timber to the square mile was thoroughly entered upon by the students. A number of test trees were felled by the boys to give them a standard by which to fix their estimates of volume. The felling, barking, and scaling of these logs gave them very practical experience in the woodsmen's art. Later on maps were made of the locality, showing the stand of timber and indicating the best places for logging roads.

This is easily stated, but, as the Secretary of the Canadian Forestry Association found from a few days' experience, it is really very strenuous work. The students breakfasted at 6.30 and were in the woods by 7 o'clock or 7.15. They carried their lunch and did not get back to camp until 6 p.m. Wet feet were the rule, and very often the boys in their enthusiasm and determination to run their lines straight through in spite of obstacles, waded waist-deep in the swamps. This, with the labor of scaling or sliding down precipitous rocks and repeated pacings to make sure of the size of areas, and with the occasional diversion of stopping to kill a rattlesnake, made up a full day that caused them to be ready for supper at night. People who have any idea that forestry is a nice, soft "snap" for



delicate young men need only a few hours in such a camp to change their theories completely. Then after supper the men usually put in a couple of hours of hard work in checking up the results of the day's work and in studying.

Dr. Fernow was well pleased with the solid work done by the students and with their enthusiasm and close attention to the rules of the camp.

Probably because of their hard work in the open air every day, the health of the boys in the camp was excellent, and a brown and husky set of young men returned to Toronto to take up their work with the various parties for the summer.

Of the forty students this year in attendance at the Faculty of Forestry of the University of Toronto, thirty-two are known to be engaged as follows through the summer: With the Dominion Forestry

Branch, 12; the Canadian Pacific Railway, 9; the Pennsylvania Railway Co., 2; Nova Scotia Forest Survey, 3; Turner Lumber Co., 1; fire ranging, mostly in Ontario, 5.

It is interesting to note the presence of so many mature men in attendance in the classes, showing the good material that the school has to work with. The average age of the students attending all the classes was 22 4-10 years. This has had an excellent effect upon the discipline and amount of work accomplished through the past academic year.

The figures for the students of the University of New Brunswick were not in when this article was prepared, but a private letter of some time ago indicated that two of them would be in British Columbia, one in Alberta and one on the limits of the Laurentide Paper Co. in Quebec under Mr. Ellwood Wilson.

## NOTES.

**NOVA SCOTIA SURVEY.** Under the direction of Dr. Fernow, Dean of the Faculty of Forestry of the University of Toronto, the reconnaissance forest survey of Nova Scotia is being completed this summer. Those engaged in the survey are Dr. C. D. Howe and Mr. J. H. White, lecturers in forestry in the University of Toronto, and the following students: Mr. T. W. Dwight, of Guelph; Mr. Alain Joly de Lotbiniere, of Point Platon, Que. and Mr. Wm. Kynoch, of Toronto.

**WORKING IN BRITISH COLUMBIA.** Mr. A. H. D. Ross, M.A., M.F., lecturer in forestry in the University of Toronto, is at work in British Columbia, and several of the students are under his direction. Of the senior students Mr. G. H. Edgecombe, of St. John, N.B., is at work in the reserve on the eastern slope of the Rockies, Mr. P. I. Bryce, of Ottawa, and Mr. L. N. Ellis, of Toronto, are in the Prairie Provinces.

**REMOVING TO OTTAWA.** It is expected that by the time this number of the CANADIAN FORESTRY JOURNAL is issued the Secretary will have moved to Ottawa where his headquarters will be the Canadian Building, Slater St. Correspondence should be sent to him at the new address. This change has been in contemplation for some time past and it is expected the bringing of the executive officers together will greatly facilitate the work. At the same time it is hoped that the Secretary will be able to keep in close touch with Dr. Fernow and his staff in the Faculty of Forestry in the University of Toronto, from whom so much assistance

has been received, particularly during the past year. When it was decided to appoint a permanent secretary, Dr. Fernow granted the Association the free use of a room for office purposes in the Forestry Building. This has been the least of the benefits received by the Association from this connection, as the Secretary has also had the use of lantern slides for his lecture work, has always been able to get exact information in regard to the many questions coming up, and particularly in regard to organizing, in which Dr. Fernow is a veteran; and not only has he been in touch with Mr. A. H. D. Ross, the ex-secretary of the Association, and the other members of the Faculty, but he has also come into contact with forty young men looking to forestry as their profession, who come from all parts of Canada. If these advantages could be combined with those possessed by Ottawa, the situation would be ideal; but, now that the connection has been formed, it is hoped the Secretary will be in Toronto often enough to keep it vital and strong.

**FIRE LOSSES IN U. S. FORESTS.** The loss from fire in the U. S. National Forests during 1909 was much less than that of the preceding year.

Three hundred and sixty thousand acres were burned over in 1909, as against 400,000 acres in 1908. In 1909 170,000,000 board feet of timber was consumed, as compared with 230,000,000 in 1908. The loss in value of timber destroyed was less than \$300,000, only two-thirds of that of 1908. Damage to reproduction and forage in 1909 was less than one-fourth of that of the preceding year.



**NEW BRITISH COLUMBIA RESERVE.** The Government of British Columbia, by order-in-council of May 31st, has reserved an area of two hundred and seventy-six square miles, on Vancouver Island, extending from Crown Mountain south and including all but the extreme northerly portion of Buttle's Lake and the surrounding country. This is to be set apart for a public park. This action is the result of an agitation that has been going on for some time, the chief organizations taking part being the Natural History Society, the Vancouver Island Development League and the Board of Trade.

**CONSERVATION COMMISSION'S REPORT.** The first annual report of the Commission of Conservation has been issued and is ready for distribution.

It contains the full text of the addresses given at the meeting, an abridged account of which appeared in the April **CANADIAN FORESTRY JOURNAL**. Articles of special importance to those interested in forestry are: "Scientific Forestry in Europe, its Value and Applicability in Canada," by Dr. B. E. Fernow; "Diseases of Forest Trees," by Dr. H. T. Gussow; "Insects Destructive to Canadian Forests," by Dr. C. Gordon Hewitt; "Fur-bearing Animals in Canada and How to Prevent their Extinction," by F. T. Congdon, M.P. The inaugural address of Hon. Clifford Sifton is of the greatest value to advocates of conservation, in whatever direction their special interest may lie. The act establishing the commission, the amending act the order-in-council appointing commissioners and the personnel of the committees are also given.

After concluding the academic and practical work of the year in the Department of Forestry of the University of New Brunswick, it is likely Prof. R. B. Miller will spend some part of the summer in Indiana.

Mayor M. Goffatt, of Orillia, Ont., has been urging on the provincial authorities the establishment of municipal forest reserves. Towns could well undertake the work, he thinks, using their police forces to patrol the forest, thereby carrying out the work of protection at a small cost.

On May 18th, during the absence of the Secretary from the office at 11 Queen's Park, Toronto, some member sent his renewal membership fee of one dollar by messenger. The envelope was the printed one bearing the Secretary's name and address, but there was no mark of any kind by which to identify the sender. If the member in question will kindly communicate with the Secretary he will be duly credited with the fee.

**TREE DISTRIBUTION IN WEST.** A new feature in the tree distribution work from the Indian Head Nursery this

year was the distribution in quantity of coniferous stock, about 62,000 seedlings of eleven species of conifers having been sent out; of these much the greater proportion were tamarac and Scotch pine. In all about 2,600,000 trees were distributed, approximately the same number as for several years past. The nursery has now reached nearly the maximum of production, and if the work is to be carried on on the present scale, some arrangement will have to be made looking to its enlargement. Owing to the practically stationary number of trees to be distributed and the greatly increasing number of applicants, the average number of trees sent to each applicant this year was but 800, while in 1908 it was 1,400. The following figures show the increase in the work of this division of the Forestry Branch: No. of applicants on the books in 1908, 3734, in 1910, 8,318; No. to receive trees in 1908, 1,424, in 1910, 3,173; No. of new applications in 1909, 2,235, in 1910, 3,832.

**NEW TIMBER REGULATIONS IN QUEBEC.** The most noteworthy feature of the timber regulations recently promulgated in the Province of Quebec is

clause 13, which reads: "All timber cut on Crown lands after May 1st, 1910, must be manufactured in Canada, that is to say, converted into pulp or paper, deals or boards, or into any other article of trade or merchandise, of which such timber is the raw material." This includes railway ties and timber completely squared, but does not include "timber simply cut into lengths, piled, barked or otherwise worked preliminary to the manufacture of pulp, paper, deals, etc." Definite action is thus taken in regard to prohibiting the export of pulpwood cut on Crown lands. The ground rent is fixed at \$5 per square mile, subject to increase if the limits are not operated, and any infringement of the law or regulations forfeits the right of the holder to renewal. The transfer fee is made \$4 per square mile. Forest rangers and other departmental officers are to be given the right to enter on the limits in the performance of their duties and are to have free access to all books relating to the operations. The present regulations will remain unchanged until 1920.

That the work of the Canadian Forestry Association is widely known and appreciated is shown by the fact that in one week recently new members were enrolled in various parts of Canada and in the United States, Ireland and the Sudan. The member from the Sudan was Mr. George Robinson, B.A. B.A.S., Inspector of Woods and Forests to the Sudan Government.